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PROMOTING CYCLING AND HEALTH IN A DISADVANTAGED AREA OF NORTH EAST DUBLIN CITY

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Abstract

Poor health has been identified as an issue for people who live in areas affected by structural disadvantage and social exclusion. One area in the North East of Dublin City has been identified for the development of a project addressing health inequality and promoting a "Healthy Community" by Northside Partnership, a local development company established in 1991 to address social exclusion in designated disadvantaged neighbourhoods. DIT have engaged with Northside Partnership since 2013 in a Students Learning with Communities Initiative to research levels of mobility and the potential for sustainable transportation as a means to promote health within the study area.

This paper describes a stage in this ongoing research process, specifically an audit of cycling infrastructure and potential barriers to cycling in the study area. The overall cycling mode share of the pilot area was 3% at the time of the most recent census in 2011. This figure is below the average percentage of cycle modal share of Dublin City and Suburbs (5.4%) and further behind Dublin City Council aspirations to achieve 20-25% of trips by bike by 2022.

The study identifies physical barriers to cycling, including poor cycle-ways and cycle parking infrastructure. Proposals for a citywide cycle network, as part of the National Transport Authority's (NTA) Cycle Strategy for the Greater Dublin Area (GDA), were reviewed. The proposed NTA network is extensive and comprehensively thought out and will provide good access to the study area if implemented. The project team made certain supplementary recommendations, including greater use of open spaces as a means to both improve the spaces themselves and provide greater connectivity. Some additional feeder routes were recommended within the study area. Additional and improved cycle parking facilities are warranted in strategic locations.

The study is strongly supportive of the development of the Santry River Greenway, a proposed greenway that links the area to significant amenity, employment and adjacent neighbourhoods. The development of the Greenway, not just as a physical piece of green infrastructure but as a socially connected community space, is recommended.

The study also highlights the need to address pervasive social barriers to cycling uptake which are evident in the area. To successfully deliver projects such as the Santry River Greenway will require investment in community collaborative planning. Ideally meaningful participatory projects to promote cycling and develop community cohesion around the greenway would form part of its investment package. Doing so will yield wider social and economic returns including increased social inclusion and labour market access, supporting the aims and mission of the community partner organisation.

Introduction

The Healthy Communities Initiative was set up by the Northside Partnership (NSP), a local development company, in collaboration with the Health Service Executive (HSE) in order to

promote wellbeing and reduce health inequalities within a pilot area taking in 6 electoral districts in the Priorswood, Darndale and Kilmore West neighbourhoods on the northside of Dublin City [1]. The pilot area for the initiative manifests a number of determinants, which can contribute to poorer than average health, such as low income and welfare dependency. It is characterised by high levels of structural disadvantage. It has a history of being targeted by a series of area-based interventions and pilot initiatives addressing educational underachievement, labour market integration, supporting parenting and improving school readiness among children. The area exemplifies how social and economic deprivation can reinforce and contribute to undesirable behaviours and attitudes towards the environment and individuals' own health [2]. In line with the World Health Organisation's (WHO) *Healthy Settings Approach to Health Promotion* [3], the Healthy Communities Initiative aims to tackle health problems through fostering supportive networks and developing a strategic concept that is geared towards creating healthy environments.

Transport and mobility have been identified as key factors in the promotion of health and wellbeing. Car dependency, for example, can have a number of negative outcomes, such as: physical inactivity; pollution and carbon emissions; traffic congestion; fragmented communities; reduced social interaction and urban sprawl [4], all of which impact adversely on public health. Conversely, active transport, such as walking and cycling, not only promotes physical activity, but also has a benign impact on the environment, is more affordable and contributes to social cohesion [5]. Also, it is frequently contended that for the creation of multi-modal transport networks, active transport needs to be complemented by public transport, which "plays a central role in encouraging more active travel as most journeys by public transport also involve a walk or cycle to a stop or station" [6].

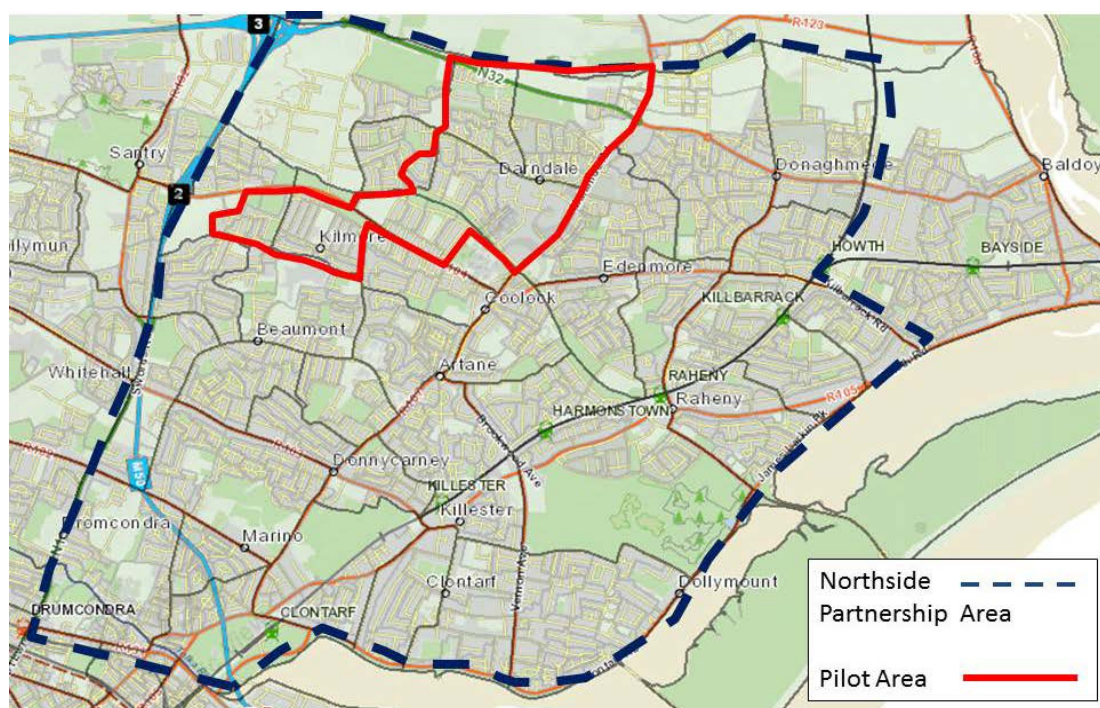


Figure 1: Northside Partnership Healthy Communities Initiative Pilot Area

While earlier studies [1] have described it in more depth, the pilot area largely consists of low-density housing estates, most of which were built in the 1960s and 1970s. It is not very conducive to active transport due to structural factors, such as impermeable blocks, cul-de-sacs, wide carriageways and junction design which promotes car use over pedestrian or cycling use [7]. These previous studies, conducted as part of the Healthy Communities Pilot, also demonstrated pervasively negative attitudes towards active transport, due partly to perceptions of safety and the environment, but also socially-bound stigma [1] such as the need to insist on bike helmets for safety and the notion of the car as a social aspiration.

Background to the Healthy Communities Initiative Pilot Area Cycling Audit

As part of its *Students Learning with Community (SLWC)* Programme, the Dublin Institute of Technology (DIT) has partnered with the Northside Partnership (NSP) in order to address issues of sustainable transport and mobility in the NSP Healthy Communities Initiative Pilot Area (see Figure 1). This has led to a number of projects, which have targeted issues related to public transport, cycling and walking. Since 2013, DIT postgraduate students have undertaken an ongoing assessment of mobility among the pilot area communities. The assessment has thus far included: -

- an appraisal of overall mobility and mobility services in the area [1];
- a walkability audit [7];
- an audit of public transport service levels [8];
- an audit (current study) of cycle infrastructure;
- and a behaviour & attitudinal survey which included a Travel Diary conducted among selected community representatives [1].

The mobility study revealed that while travel demand levels are high (interviewees make more trips than national and urban averages), attitudes towards cycling were overwhelmingly negative, with safety being the key concern [1]. Such negative attitudes towards cycling are compounded by poor environmental conditions as well as safety issues in the area.

This paper describes only one stage in this ongoing research process, specifically an audit of infrastructure and conditions for cycling, carried out during 2014. It begins by outlining the methodology used. It then provides a brief description of the percentage of cycling mode share in the area. Infrastructural shortcomings are identified and recommended remedies are proposed based on the audit of the pilot area's existing infrastructural shortcomings whilst also being cognisant of its geographic location, urban function and its socio-economic challenges. The paper goes on to highlight social barriers to cycling in the area and concludes by proposing recommendations for further action and research. Recommendations include supporting the development of the NTA's proposed Santry River Greenway, a greenway that will provide connectivity with employment and amenity areas, and the provision of quality cycle parking stands in the pilot area's activity nodes.

Methodological Approach and Data Collection

The collation of information, data and the empirical research was based on available statistical information, a review of planning policy for the area and local surveys.

Small area data was collected from the Central Statistics Office (CSO) and mapped to depict cycling mode shares in the pilot area. Census data from 2002 to 2011 served to demonstrate the percentage of residents who commute to work or school by bicycle in the pilot area.

An appraisal of future Dublin City Council and National Transport Authority policies for the area was carried out [9, 10, 11].

Site visits were carried out, including with a representative of the community partner. Separate audit tasks were identified, in discussion with the community partner, as a means to investigate issues that had been flagged as important.

Firstly, the availability of cycle parking in the area's key trip demand centres (including schools, health care facilities, retail outlets, employment centres and community facilities) was carried out.

Secondly, an audit of the pilot area's open space was undertaken. The latter focus was also on the accessibility of the pilot area's green spaces and how they affect the area's overall cycle permeability.

Thirdly, the pilot area's cycle-able route network was appraised in relation to the key desire lines and potential new routes that could improve the pilot area's connectivity and cycle accessibility. A map of suggested new routes was created.

Finally, drawing on the Travel Diary Data from 2013 [1], mobility appraisal and observations made in the walkability audit [7], potential social barriers to cycling were assessed.

The analysis and discussion of these four key audit tasks informed recommendations towards increasing the propensity of cycling in the pilot area and its environs.

Findings

1. Cycling Mode Share

The overall cycling mode share of the pilot area was 3% at the time of the most recent census in 2011 (see Figure 2). This is below the average of cycle modal share of Dublin City and Suburbs (5.4%). Both the city and pilot area have some way to go in order to meet projected targets. A national target of 10% cycle mode share by 2020 is set out in *Smarter Travel: A Sustainable Transport Future* [4], for which Dublin, being the main urban area, is expected to reach upwards of 20% of total city-wide travel.

No mode share target is set out in the National Transport Authority Cycling Strategy for the Greater Dublin Area [11]. An assumed target of 18% is, however, referenced in the *do-something, strategy-complete scenario* described in the same study.

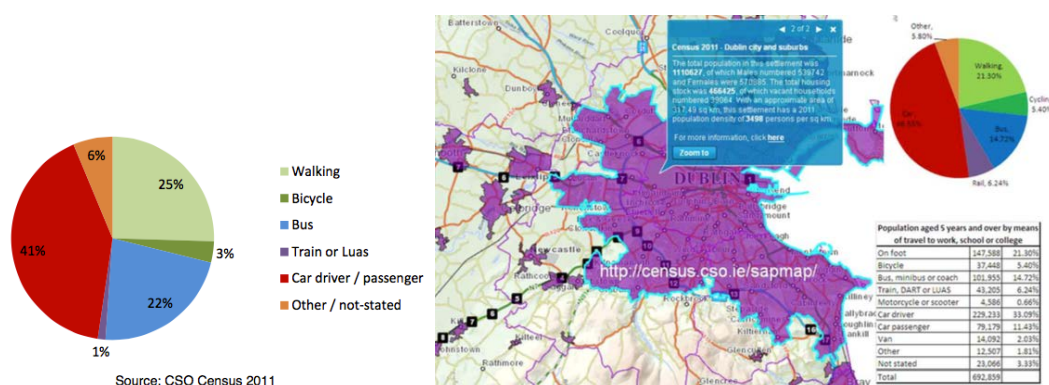


Figure 2: Pilot area cycling mode share (left) compared to Dublin City and Suburbs

Cycling as a mode share varies spatially within the Pilot Area. All except for one census small area (Malahide Cross, located in the far northeast corner of the Pilot Area) exhibit cycle commuting percentages below the city-wide average (see Figure 3).

The government's vision as laid out in the Smarter Travel document, "is to create a strong cycling culture in Ireland and ensure that all cities, towns, villages and rural areas will be cycling-friendly" [4, p 42]. The document further explains the key aspects of successful cycle infrastructure:

"The policy document follows recognised international best practice in promotion of cycling and assets that pedestrian and cycle facilities will be most successful where they form a coherent network, place an emphasis on safety, directly serve the main areas where people wish to travel, provide priority over vehicular traffic at junctions, are free from obstructions and have adequate public lighting. In addition, support facilities such as secure parking and changing/showering facilities at places of employment are a key determinant in encouraging people to cycle" [4, p 42].

Considering such wide-ranging objectives, an audit of cycling infrastructure and the general environment for cycling in the Pilot Area was carried out. Several key issues were identified in this audit and formed the basis for planning further research tasks.



Figure 3: 2011 Bicycle mode share in the Pilot Area by CSO Small Area

2. Cycle Parking Audit

A cycle parking audit of the Pilot Area was carried out. The goal was to map existing bike parking and suggest further parking areas where demand is expected. The attitudinal survey identified bike theft as a key concern and barrier to cycling among residents of the pilot area [1]. This is supported by more recent studies in the Dublin area which confirm bike theft has a strong influence in deterring people from carrying on cycling [12]. It follows that secure bike parking is an important determinant in retaining existing and attracting new users.

The results of the parking audit are displayed in Figure 4. The audit identified existing cycle parking, usually in need of improvement, and recommended locations for additional facilities.

While there was cycle parking at many of the pilot area's major attractions such as the Northside Shopping Centre, and several schools, they tended to be of a low quality and poorly maintained. There have been some improvements made in the vicinity of the Northside Shopping centre, which has received a substantial facelift. The immediate environs were frequently in poor condition. Conditions for passive surveillance were in many cases limited by poor positioning of cycle stands.

The type of cycle stands in use was also noticeably poor. The National Transport Authority's *National Cycle Manual* [13] advises against the type of bike parking facility found, for example, at Scoil Fhursa in Kilmore West, (pictured in figure 5). Racks that only secure the front wheel of a bike cause damage and make bikes more susceptible to theft. The wheel-holding bike rack makes bikes susceptible to wheel buckling if they are pushed from the side.

Bike racks were less likely to be found at smaller neighbourhood centres, such as at the junction of Kilbarron Avenue and Cromcastle Road (Figure 5). There was no discernible cycle parking inside the Malahide Road Industrial Park, which is an important source of local employment.

The proposed new parking stand locations were focused mainly at key trip demand centres that currently lack bike parking. These include smaller convenience stores, employment

centres in the Malahide Road Industrial Park, as well as bolstering the capacity and quality of bike parking stands at higher order centres such as the Northside Shopping Centre and Scoil Fhursa (see Figure 5).

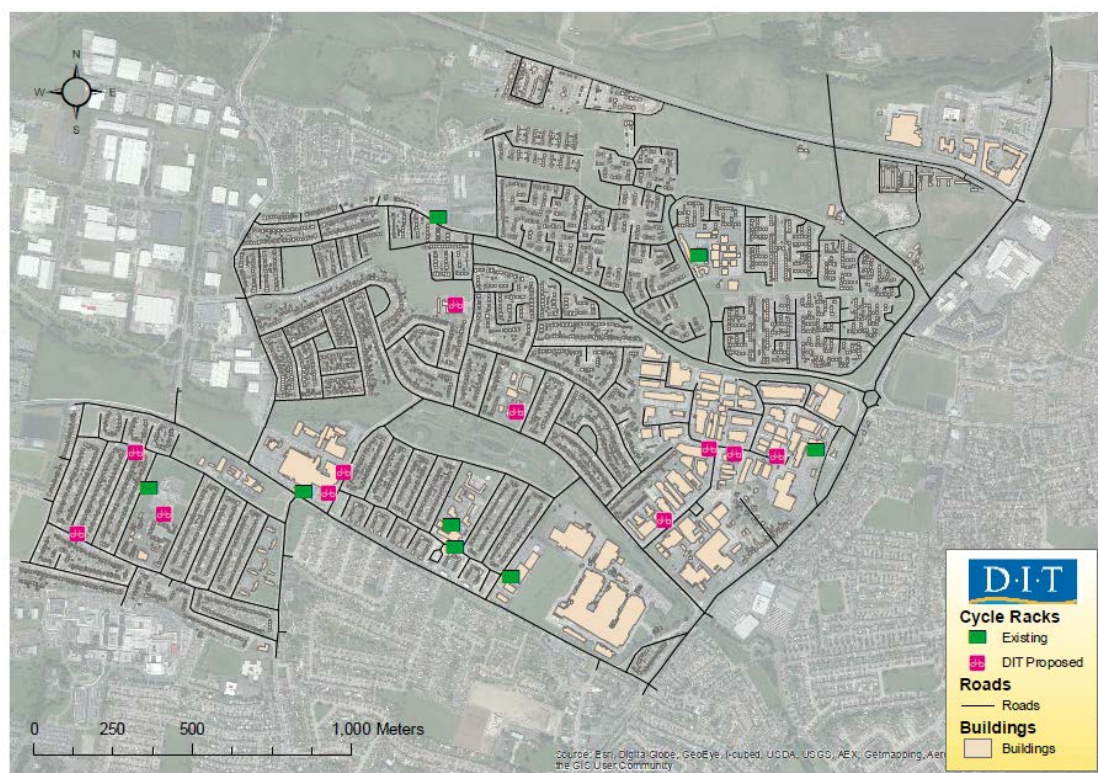


Figure 4: Cycle parking stands, existing and proposed within the Healthy Communities Pilot Area

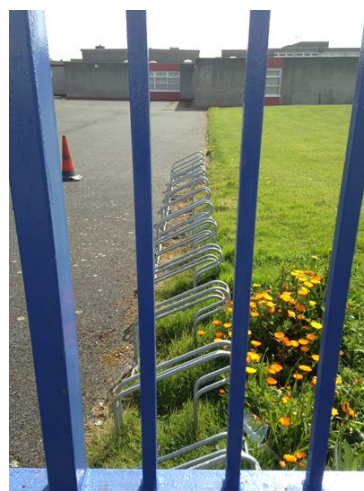


Figure 5: No cycle facilities at some Neighbourhood Centres (left) and sub-standard cycle stands (right)

3. Open Spaces Audit

The pilot area has high provision of green open space, much of which has low functional and recreational value. There are three large parks, Darndale Park, Stardust Memorial Park and Coolock Lane Park, many of which are fenced in with limited opening hours. There are many other less well defined green areas, some fenced in and others which are open and which are easily traversable on foot (see Figure 6). Many incidental green spaces serve as a buffer around the pilot area's arterial roads but are not well-defined or maintained.

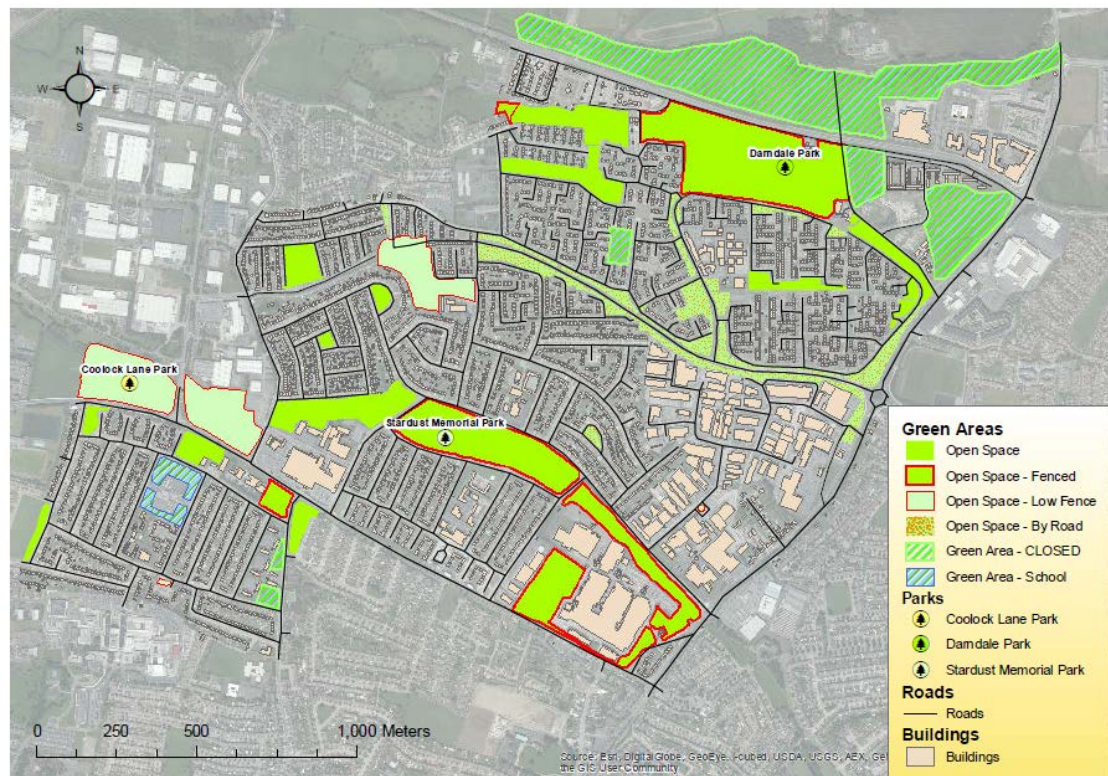


Figure 6: Green spaces within the Healthy Communities Pilot Area

Much of the existing green space tends to frustrate cycling movement by the absence of cycle paths, often excessive fencing and restrictive closing hours. The green spaces, notwithstanding currently limited access, also present an opportunity for greatly expanding the network of greenways in the area at relatively little expense.

4. Appraisal of NTA Cycle Proposals

The NTA, in the Cycle Strategy for the GDA [11], proposed the Santry River Greenway as a potential component of the Greater Dublin Area Cycle Network Plan, specifically forming part of its network of Greenways. Alone of all the greenway alignments, it stands out as the only alignment which has not processed through any part of the planning stages.

The Santry River traverses west to east through the pilot area and is buffered by green space throughout its route, including the Stardust Memorial and Coolock Lane parks. This continuous green space, with the Santry River as its spine could be developed into a high quality urban greenway cycle route through the heart of the pilot area.

The route presents a number of material advantages. It is an orbital route linking the Pilot Area with significant areas of employment and also areas of amenity. In both regards, the link is highly strategic towards the economic and social aims of the Healthy Communities project [14]. The link also connects diverse residential districts, creating the potential for increased social interaction and cohesion. From a planning perspective, the route is predominantly off-line and therefore non-disruptive to general traffic. No significant pieces of infrastructure are required beyond cycle path upgrades, crossing point upgrades, necessary safety measures, extensive landscaping and other general works, a lot of which would be primarily within the greenway alignment itself.

The NTA also proposes cycle routes along several of the pilot area's key arterials where cycle lanes are either substandard or absent. These additions would be a significant improvement to the area's cycle-ability and include the provision of quality cycle tracks along the Oscar Traynor Road, Kilmore Road, Barrycourt Road and along the Malahide Quality Bus Corridor.

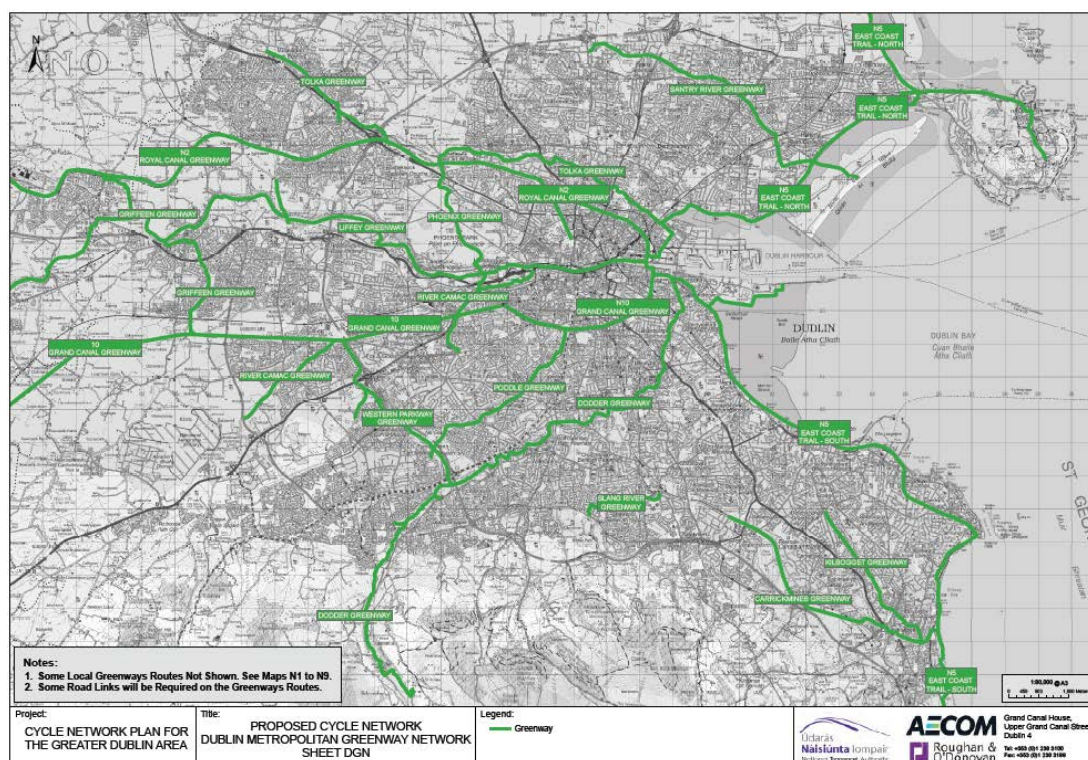


Figure 7: NTA Greenway Network for the GDA (source: NTA, 2013 [11])

Analysis by Gleeson et al (and reproduced in Borscheid et al) [15, 16], demonstrate that not only does transport demand exist along the Santry River Greenway route but that transport services are very poor in support of this demand level. This particular study compared travel to work data from the CSO 2006 POWSCAR dataset for two electoral districts on the northside of Dublin. The POWSCAR (“Place of Work and School Census Anonymised Records”) dataset contains individual household travel data records collected as part of the Census.

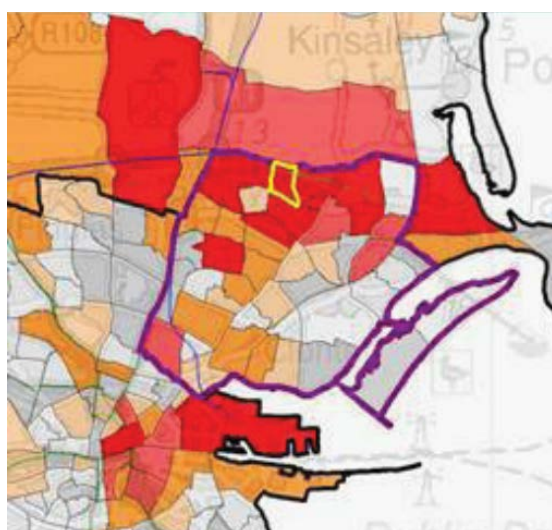


Figure 8: Destination of population at work (15+) in Priorswood B (Source: Gleeson et al (2009), New Ways of Mapping Social Inclusion in Dublin City, NIRSA, Maynooth)

Figure 8 shows the trip destinations of a residential neighbourhood within the pilot area, highlighted in red. The disadvantaged, suburban location has dispersed travel to work patterns, predominantly in outer sectors of the city which could only be accessed via orbital services, yet such orbital public transport services are very poor and traffic congestion is high.

5. DIT Supplementary Proposals

In order to create a quality and socially accessible cycle network serving the Pilot Area and adjacent communities there was considered to be scope for additional flanking infrastructure to complement and build on what the NTA has proposed. During the on-site audit of the infrastructure, it was noted that the pilot area lacks an attractive, and legible north-south connecting route. The dendritic morphology and impermeable swaths of fenced-in green

areas and industrial parks severely limit route choice through the pilot area. For this reason an additional north-south route was suggested to connect with the Santry River Greenway to form a coherent cycle network for the overall area.

The north-south route comprises of a greenway through Darndale Park to connect the R139 to Link Road. A feeder cycle route along Link Road is required to connect the Darndale Park greenway to Priorswood Road. Link Road meets Priorswood Road in a T-junction with no access to the Malahide Road Industrial Estate that is fenced off. The industrial estate's street network would facilitate a connection with Link Road and it is suggested that the fence be opened to allow pedestrians and cyclists to traverse the estate. Access to the Malahide Industrial Estate would greatly improve the pilot area's north-south connectivity. A feeder cycle route should be established on the industrial estates' existing Newtown Avenue. The survey team suggests another new entrance to the industrial estate be created to link Newtown Avenue to Greencastle Avenue, further improving the area's permeability. A feeder route should connect with Greencastle Avenue and a safe crossing point at Greencastle Road where the route would meet the Santry River Greenway (see Figure 9).

The audit team also propose an additional two-way cycle route along the R139 bounding the pilot area's northern edge. The R139 is an important route that connects the pilot area to Donaghmede and the Baldoyle Industrial Estate (see Figure 9). While heavily trafficked, it currently lacks cycle provision, nor is there any proposed in the NTA's Cycle Strategy for the Greater Dublin Area. This could be supplemented by a two-way off-road feeder route that connects the R139 with the Malahide Road, Belcamp College and the GAA pitches north of the Hilton Hotel. At the point where this feeder connects to the R139 a toucan crossing should be provided across this busy road.

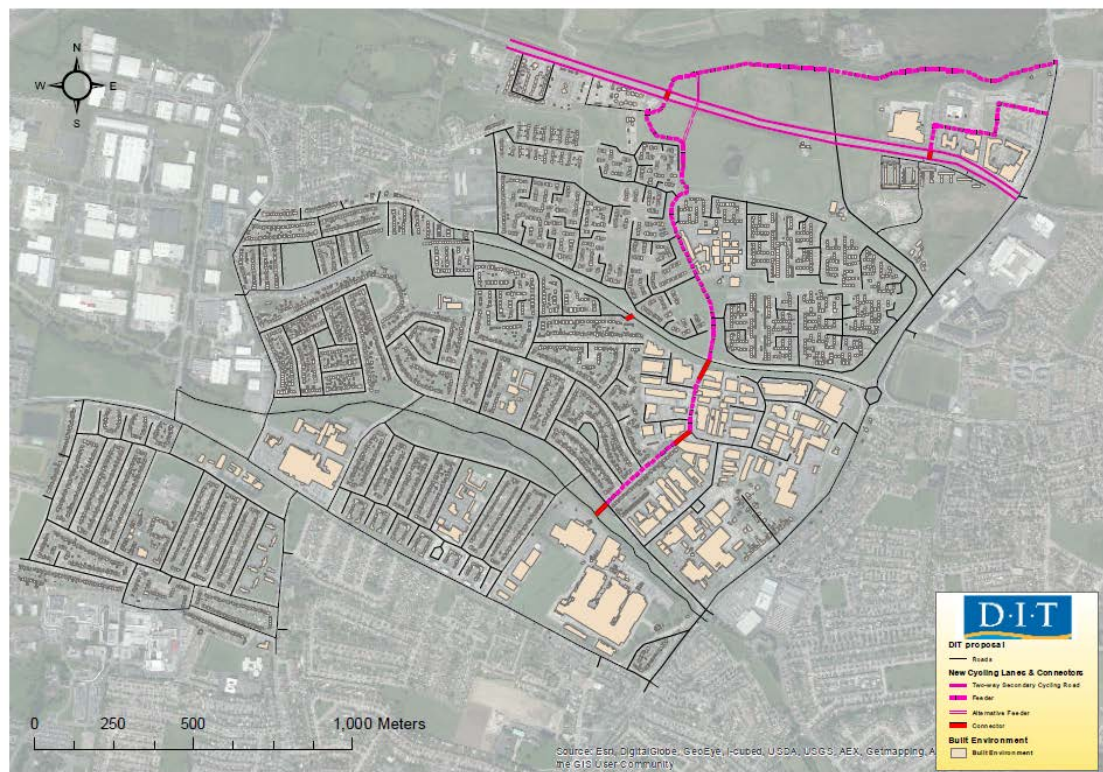


Figure 9: DIT route proposals

For this north-south route and the proposed Santry River Greenway to have the maximum positive impact on the pilot area's cycleability and overall mobility, day-long access to both routes would be very important. This implies that barriers such as existing fences around green open spaces may have to be reconsidered, along with opening hours to parks, to allow for improved cycle access.

6. Social Barriers to Cycling

In a study on walkability [7] in the same catchment area, the demand for quality mobility services was seen as being very high but the delivery was poor. It showed that local people made more trips than the national and urban averages. The study showed that other social and affective barriers existed to mobility in the area which included the poor environment, perceptions relating to safety and poor perceptions of active travel. Significant social barriers were identified in the walkability study and these, by and large, equally apply to cycling.

While Cycling has increased in the City over the last decade, this increase has not been uniform across all areas. Cycling has become and is perceived to be a more middle class activity. One example of such perceptions and their impact is the experience of a community who are objecting to the S2S cycle route, a major element of the NTA Cycle Network. Objectively the objection is against “middle class people” cycling through their area. The catchment area relating to this study is universally a working class area or what some would suggest is a forgotten neighbourhood [17].

Much of the Pilot area could be categorised as being a place where people would choose not to live. It experienced a significant out-migration in the late 1980s when the government incentivised movement with the offer of a IR£5,000 grant to encourage households to surrender their tenancy and move to private homes. Since then it has continued to experience high levels of social exclusion and marginalisation [14].

Anti-Social Behaviour

Respondents to the travel diary survey in the initial mobility study [1] identified anti-social behaviour as a barrier to movement, particularly at night. Parts of the catchment area are challenging in terms of anti social activity and from time to time have experienced high levels of “joyriding”, the practice of racing, often stolen, vehicles at illegally high speeds. The main internal roads within the area have had extensive traffic calming measures introduced with ramps and road narrowing common place. Ramps in particular are prevalent within the area. In addition to joyriding, respondents identified reckless driving, roaming horses, vicious dogs, littering and illegal dumping of rubbish. While there were many reasons suggested for this level of anti social behaviour, the underlying outcome was that people did not feel comfortable moving through their area. The curtailing of bus services after dark on numerous occasions is testimony to difficulty of mobility in the area and problems faced by local people. This is not a welcoming environment for cycling and there are no dedicated cycling routes that link individuals to desired locations [1, 8].

Street Design and Road Surfaces

The area is characterised by a high level of cul-de-sacs, roundabouts, wide carriageways, narrow roads with high level of on street parking. It is an area whose design promotes a culture of car dominance and discourages other modes of transport. The area has permeability issues and its structural layout is not conducive to cycling.

The road surface may be suitable for cars, and while it can be problematic for buses, it is, in places, hostile for cycling. Areas that have damaged surfaces are slow to be repaired and traffic calming measures, where present, are often not cycle friendly.

Parts of the catchment area suffer from high levels of litter. Much of this ends up on the roadway and on footpaths, and in some cases causing a real threat to safety, particularly with hidden glass and air-borne plastic bags on inclement days.

While there are many social and physical barriers in place to cycling, it is the poor attitude towards cycling that seems to have the biggest impact. Few local schools encourage pupils to cycle, and as stated earlier in this paper, there is a lack of cycle parking at key locations. There is no extensive campaign for cycling in the area and no major campaign has taken place to promote the case for the Santry River Greenway.

Concluding Discussion

The study identified extensive environmental issues and infrastructural barriers to cycling in the Pilot area. These include a lack of bike parking facilities in the area's key trip demand centres, including Northside Shopping Centre and local centres such as Cromcastle Road. An audit of the area's many open green spaces found that many are fenced in and thus inhibit the overall cycle permeability of the pilot area, along with poor maintenance and prevalence of anti-social behaviour. Another key issue was the lack of cycle lanes on key cross cutting arterials such as the Oscar Traynor Road, The Link Road and the R139. In addressing these inadequacies, the survey team took into account the NTA's comprehensive 2013 Greater Dublin Area Cycle Network Plan [11], with certain local additional feeder routes being suggested.

The Santry River Greenway Corridor, proposed as part of the NTA's *Greater Dublin Area Cycle Network*, was identified as a key potential resource for increasing mobility, health and long-term social inclusion within the Pilot Area. The Greenway is identified as part of the Strategic Green Network in the NTA Cycle Strategy for the Greater Dublin Area. Yet, of all the Greenways, it alone has not commenced through the planning stages. Initial appraisal, as part of the Northside Partnership Healthy Communities Pilot, suggests that it can potentially be among the most viable, in terms of health, community regeneration and local economic development. Sectoral demand for trips is clearly evident along its route yet the quality of transport service provision is very poor.

Northside Partnership made several submissions in favour of developing the Santry River Greenway to Dublin City Council, the National Transport Authority and to the Minister for Transport Tourism and Sport. No formal actions have yet been taken to advance the corridor and it was not included in a draft list of cycling projects for the Greater Dublin Area in 2016.

The corridor and route is mainly off-line, passing through existing green areas. There are unlikely to be significant new structures (bridges, tunnels, etc.) required. In terms of the city structure, it is an orbital route and connects areas of residence, employment and amenity, which are currently significantly severed from each other. It also connects areas of contrasting socio-economic profiles. The route is likely to provide additionally mobility and connectivity to areas currently poorly served by public transport, with high levels of traffic (and traffic congestion) and generally poor amenity for cyclists and pedestrians.

In spite of potentially wide economic gains and likely improvements to mobility, developing the Santry River Greenway – as with any piece of urban infrastructure – has certain risks. Potential problems could include: lack of awareness of the corridor's existence; lack of social acceptance and appreciation of internal benefits; fear of anti-social behaviour; and traditional anxieties about increased connectivity.



Figure 10: potential participatory projects (left, a Community Health and Fitness Trail and, right, a Community Farm Network) identified by students of the 2015/2016 MSc Sustainable Development and MSc Local Development & Innovation programmes

A challenge is to identify participatory projects which can make the Santry River Greenway deliverable and successful as a community amenity, accessible to everyone and enriching

the lives of all those who live within its reach. Ideally, these would identify ways in which the community can be involved and empowered as part of the overall project design and delivery of the Santry River Greenway. Interventionist projects should be collaborative in nature and could include physical interventions (e.g. a community garden) as well as programmatic solutions (e.g. an event or participatory process). Two such potential projects – a Community Health and Fitness Trail and a Community Farm Network – were identified by students of the 2015/2016 MSc Sustainable Development and MSc Local Development & Innovation programmes and these merit further consideration (see Figure 10).

Acknowledgements

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